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# Testing an Evaluation Model for Assessing the Efficacy of the Minneapolis Healthy Corner Store Program

MAKING PRODUCE MORE  
VISIBLE, AFFORDABLE AND  
ATTRACTIVE



**City of Minneapolis**  
*Health Department*

MINNEAPOLIS HEALTH DEPARTMENT  
SEPTEMBER 2013

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**City of Minneapolis**  
*Health Department*



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## Introduction

In many low-income Minneapolis communities, the disproportionate availability of unhealthy foods compared to healthy foods, transportation challenges and high costs associated with fresh food contribute to increased health disparities including obesity and chronic disease. Often, many residents rely on corner stores as a predominant source of basic staple foods.

To address these health inequities and increase access to fresh foods, the Minneapolis Health Department (MHD) developed the Healthy Corner Store Program. The program supports store owners' ability to successfully offer fresh fruits and vegetables in their store by increasing the visibility, affordability, and attractiveness of fresh produce. MHD designed the intervention to address merchandising, marketing, quality, variety and procurement challenges store owners face. Between 2010 and 2011, ten stores participated in the program.

To evaluate the program, MHD conducted pre- and post- visual assessments of each store and interviews with store owners. MHD also attempted to collect sales data from store owners to measure changes in produce sales. While the visual assessments were an effective way to measure changes in the variety and quality of fresh produce, there were many challenges and inconsistencies related to objectively measuring changes in produce sales.

Between 2012 and 2013, MHD expanded the Healthy Corner Store Program to 30 new stores. MHD also received additional funding from the Minnesota Department of Health to conduct a systematic sales analysis to evaluate changes in produce sales and customer purchasing patterns and perceptions related to healthy foods in corner stores.



Many customers rely on corner stores for their food needs and use nutrition assistance programs to offset the costs.



Store front in north Minneapolis.

## Why this Report?

The purpose of this report is to describe the process MHD used to collect and evaluate store sales data and customer data and to present the results and lessons learned from this in-depth evaluation. Prior to this study, few evaluations had attempted to directly measure sales of fresh produce using objective methods. Most have relied on self-reported data from store owners or observations as a proxy for actual sales. MHD's unique approach to sales evaluation offers a model for other communities that want to determine the impact of their own corner store initiatives on store sales.

For a complete description and results of the Minneapolis Healthy Corner Store Program in the cohort of 30 stores, please refer to the 2013 Minneapolis Healthy Corner Store Report available at [www.minneapolismn.gov/health](http://www.minneapolismn.gov/health) (November 2013).



In many stores, the little produce available was often located in the back of the store or on a bottom shelf in bags or boxes.

The Minneapolis Healthy Corner Store Program makes produce more visible and attractive for customers.





## Evaluation Questions & Methods

Between 2012-2013, MHD implemented the Healthy Corner Store Program in 30 stores. Program components included:

- Recruitment of stores to participate in the program.
- Technical assistance to support data collection and provide assistance to owners.
- Visual assessments and owner interviews.
- Store-specific enhancements to display produce more visibly and attractively.
- Produce trainings for store owners on how to create attractive produce displays and keep produce fresh.
- Customer engagement activities such as in-store cooking demos, taste tests and local newspaper advertisements.
- Customer surveys in participating stores.
- Post-visual assessments and owner interviews.

### Evaluation Description

MHD staff conducted the evaluation over 14 weeks in the fall of 2012 (August – November). Staff recruited seven of the 30 stores to participate in the evaluation. MHD selected stores that had existing point-of-sale (POS) systems, which are computerized systems that track and report on sales and transaction data. MHD provided technical assistance via an external consultant to help store owners properly program POS systems to collect information and generate sales summaries. Staff assigned five stores to the “intervention” category and two stores to the “control” category. Intervention stores received store enhancements and technical assistance near the middle of the 14-week period, whereas control stores did not receive enhancements until after the evaluation had ended.

### Elements of Store Enhancements

- Moved fresh produce to a visible location at front of the store or in a high traffic area.
- Arranged fruit in grab-&-go baskets at checkout.
- Suspended “Fresh Produce” sign from ceiling near produce cooler and placed window clings at store entrance and on produce coolers.
- Re-merchandised produce attractively and displayed in baskets.
- Placed price signs for all produce items.
- Cross-merchandised other healthy products to “create-a-meal”



The corner store team spent two to three hours per store to create more visible and attractive displays of fresh produce.

MHD used the following questions and performance measures to guide the sales evaluation of the Minneapolis Healthy Corner Store Program:

Evaluation Question	Performance Measure
Is the Minneapolis Healthy Corner Store Program effective in increasing sales of fresh produce?	Store sales data (\$ amount of produce sold; total store sales)
	Store transaction data (# of transactions including produce; total store transactions)
	WIC produce voucher redemptions (\$ amount of produce purchased with WIC vouchers)
How does the Minneapolis Healthy Corner Store Program impact customers' healthy food purchasing?	Customer surveys (self-report of purchasing patterns and perceptions of healthy foods in corner stores)

## Methods for Collecting and Analyzing Store Sales Data

MHD collected eight weeks of POS and transaction data per store using each store's computerized POS system over 14 weeks. During the first four weeks, MHD collected pre-intervention sales data, then, within the next six weeks, conducted enhancements and community engagement events. During the last four weeks, MHD collected post-intervention sales data. It is important to note that not all stores were on the same 14-week time frame. Five stores followed the same data collection schedule and two stores delayed the start by two to four weeks. Follow-up data was additionally collected for one week in January, March, and May of 2013.



## Timeline At-A-Glance

**May 2012:** Technical assistance consultant & Community Based Organizations are identified

**June-August 2012:** 30 stores recruited and subset of 7 are identified for sales evaluation

**August-October 2012:** 4 weeks of baseline sales data collected

**September-October 2012:** Store enhancements and community engagement activities conducted in intervention stores

**October-November 2012:** 4 weeks of sales data collected post-enhancement in each store

**December 2012:** Enhancements conducted in control stores & WIC data retroactively obtained in all stores

**January, March, May 2013:** Monthly follow-up sales data collection

## Expenses

### Staffing

- One MHD staff person: 20 hours/week
- One MHD staff person: 4 hours/week

### Contracts

- One TA consultant: 8-10 hours/month for 4 months
- 7 Community Based Organizations: 10 hours/week for 10 months

### Program Expenses

- Owner incentives: \$50/week x 11 weeks = \$550 per store
- Customer survey incentives: \$10 per customer x 30 surveys = \$300 per store

As an incentive, owners received \$50 gift cards to a large retail store at every data collection pick-up. MHD predetermined a weekly data pick-up schedule prior to the start of the evaluation to help accommodate the work schedules of store owners. At each weekly pick-up, MHD collected POS data from the previous week (e.g. data picked-up on August 8<sup>th</sup> corresponded to the week of August 1<sup>st</sup> to August 7<sup>th</sup>).

## Data Collection Methods

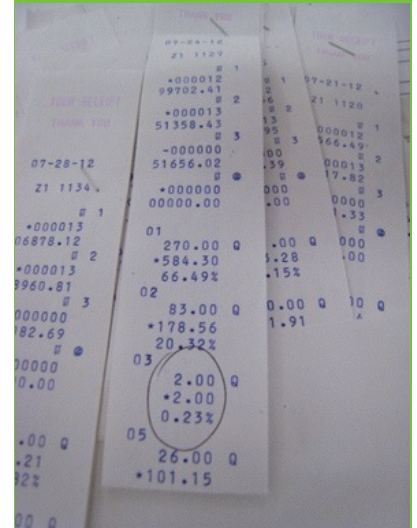
Staff conducted sales data collection in two ways:

**POS method:** In five stores, store owners and employees captured produce sales in their POS systems using a specific produce key programmed into their register. At the end of each day, owners printed reports of produce sales and transactions from the POS system, which MHD collected on a weekly basis using a data collection form (Appendix A: POS Weekly Data Collection form). MHD collected overall store sales and transactions using the same method.

**Receipt method:** Despite the efforts of MHD and the technical assistance consultant, two owners simply could not change their protocol for tracking sales or gain the skills to use the programmed key in their system to track produce sales even though they agreed to this change when recruited to participate. In these stores, MHD could not directly download produce data from POS systems. Instead, owners and employees agreed to save customer paper receipts of fresh produce purchases in a small box by the register. MHD hand-totaled these receipts at each weekly pick-up and copied the information into the POS Weekly Data Collection form. MHD successfully retrieved sales of total store purchases using this method.



POS system are designed to capture sales data by category, MHD found many systems were not maintained or functioning properly.



Example of a printed report of daily total store sales broken down by category. Daily totals are a common sales tracking mechanism for POS systems. MHD collected 7 days of daily totals at each weekly data collection point.

03= Produce category  
2.00= 2 Transactions  
\*2.00= \$2.00 in sales  
0.23%= % of store sales

Early in the program, MHD learned from owner interviews that POS systems do not capture sales of produce purchased with WIC vouchers in the same category as all other produce. To accurately report complete store sales data of fresh fruits and vegetables, MHD retroactively obtained store-specific WIC produce voucher data from Minnesota WIC program. With written consent from store owners, MHD added these totals to the regular produce sales during data analysis. The Minnesota WIC program provided the data to MHD in the form of an individualized list of all fruit and vegetable voucher redemptions for those stores participating in the program that accepted WIC during the specified timeframe.

MHD collected sale and transaction history at the store level and at the produce category level. MHD performed data analysis using Microsoft Excel for data input into spreadsheets and performing percent change calculations. A University of Minnesota statistician provided additional assistance to perform advanced analysis by Analysis of Variance (ANOVA) and *f*-tests to obtain *p*-values using the statistical software, SAS Proc Mixed Version 8.

## Data Calculations

Data for each store was reported by calculating produce sales as a percentage of total stores sales.

$$\% \text{ produce sales} = \frac{\text{total produce sales}}{\text{total store sales}}$$

Transaction data (trans) was reported by calculating produce transaction history as a percentage of total store transactions.

$$\% \text{ produce trans} = \frac{\text{total produce trans}}{\text{total store trans}}$$

\*This reporting method provided a consistent and comparable unit of measurement across stores.

9999 01 Doe Jane 99 09/01/2009 10/01/2009

HOUSEHOLD I.D. NO. (SEE CL) NAME OF PARTICIPANT AGENCY FIRST DAY TO USE LAST DAY TO USE

PAY TO THE ORDER OF MINNESOTA WIC PROGRAM VENDORS 01 CLINIC

FOR THESE ITEMS ONLY (SEE WIC-ALLOWED FOOD LIST)

6 dollars FRESH Fruits and Vegetables and/or WIC-allowed frozen and canned fruits/vegetables

\*\*\*VALUE NOT TO EXCEED DOLLAR AMOUNT LISTED\*\*\*

110542536

NO PAYMENT WITHOUT

VENDOR: FILL IN \$ AMOUNT BELOW

MINNESOTA WIC VENDOR STAMP

VENDOR MUST DEPOSIT WITHIN 60 DAYS FROM FIRST DAY TO USE

NOT TO EXCEED: \$ \*\*\*\*\*

AUTHORIZED SIGNATURE

110542536 09191248 801203

Example of a WIC voucher redeemable for fresh fruits and vegetables.



## Methods for collecting and analyzing customer surveys

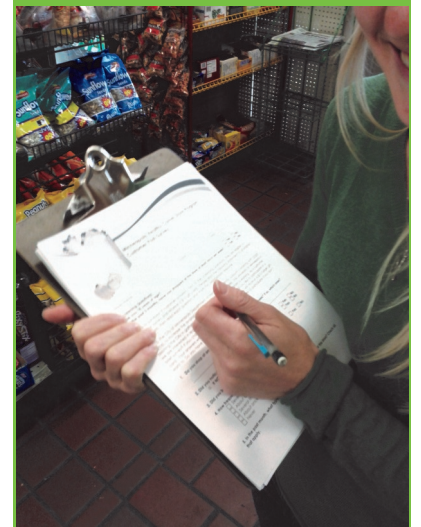
In October 2012, after store enhancements, contracted community organizations along with a University of Minnesota graduate student verbally administered 210 customer surveys (30 customers in each of the 7 POS stores). Customers received a \$10 gift card to a large retail store for completing a survey. The surveys were designed to capture information on customer purchasing habits, types of fresh produce purchased and perceptions regarding access and availability of fresh fruits and vegetables in the neighborhood. See Appendix B for the Customer Survey.

The University of Minnesota graduate student analyzed the results of the customer surveys. All data were entered in Microsoft Excel, which the student used to calculate descriptive statistics for each of the seven stores and the intervention and control stores combined. It was not feasible to conduct pre-enhancement and post-enhancement surveys with the same group of customers, therefore MDH staff evaluated post-intervention surveys only.

## Results and Key Findings

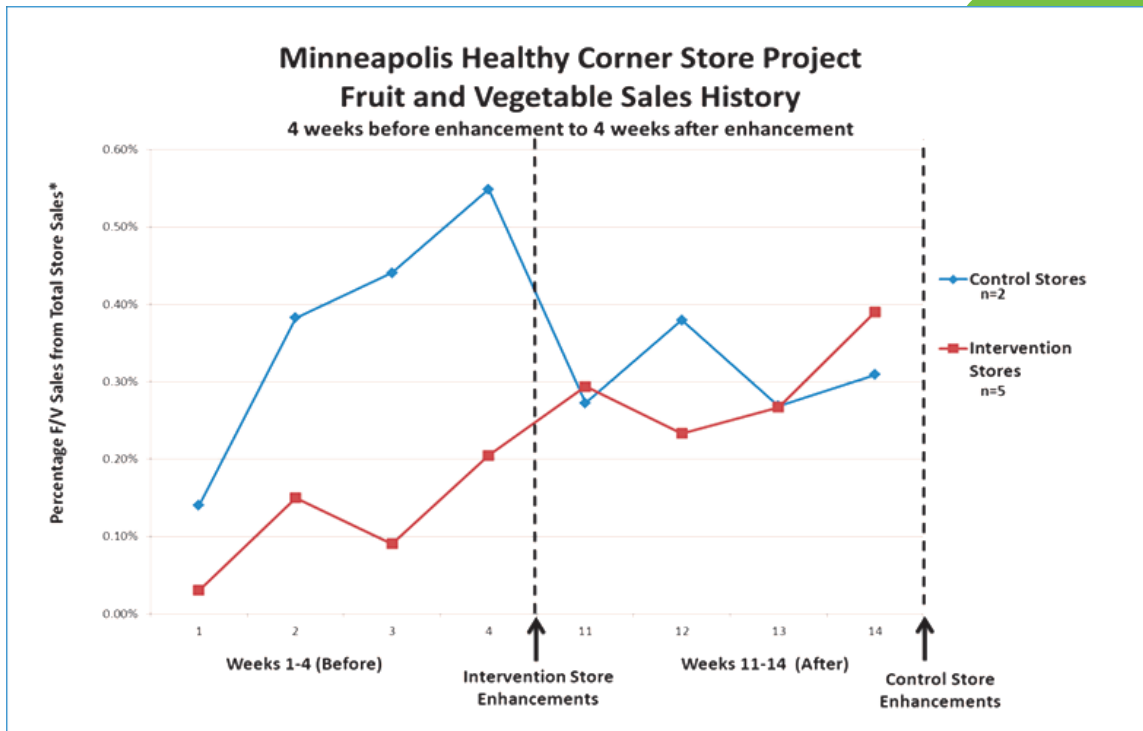
### Is the Minneapolis Healthy Corner Store Program effective in increasing sales of fresh produce?

Analysis of POS data indicated that total fruit and vegetable sales were a low percentage of total store sales, ranging from 0.0% to 2.97% pre-enhancement to 0.0% to 5.49% post-enhancement. In general, the five intervention stores experienced a more consistent upward trend in produce sales and transactions from pre-store enhancement to post-store enhancement as compared to the two control stores. Intervention stores had a 155% increase in produce sales pre- to post-enhancement, compared to a 22% decrease in produce sales among control stores (See Figure 1, pg. 10).



A U of M graduate student conducted 30 customer surveys in each store to capture information on customer purchasing habits and perceptions of healthy foods available in their corner store.

Figure 1



Additionally, the intervention stores had a 146% increase in produce transactions, compared to an 11% decrease in produce transactions (transactions that included one or more produce items) among control stores (See Figure 2). The decrease in sales and transactions among control stores may be explained by seasonality or by control store owners' lack of motivation to record sales in their POS systems near the end of the intervention.

\*Fruit and vegetable (F/V) sales/transactions were calculated as a percentage of store sales on a weekly unit of analysis.

Figure 2

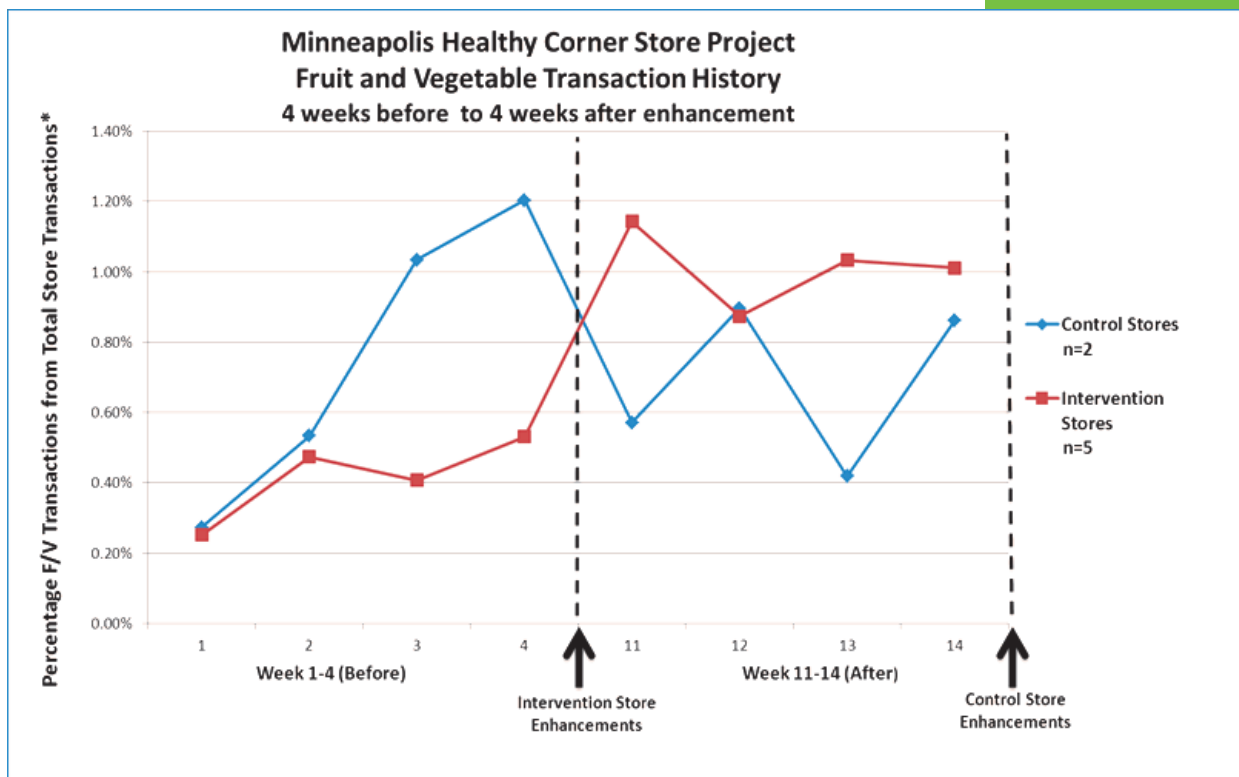
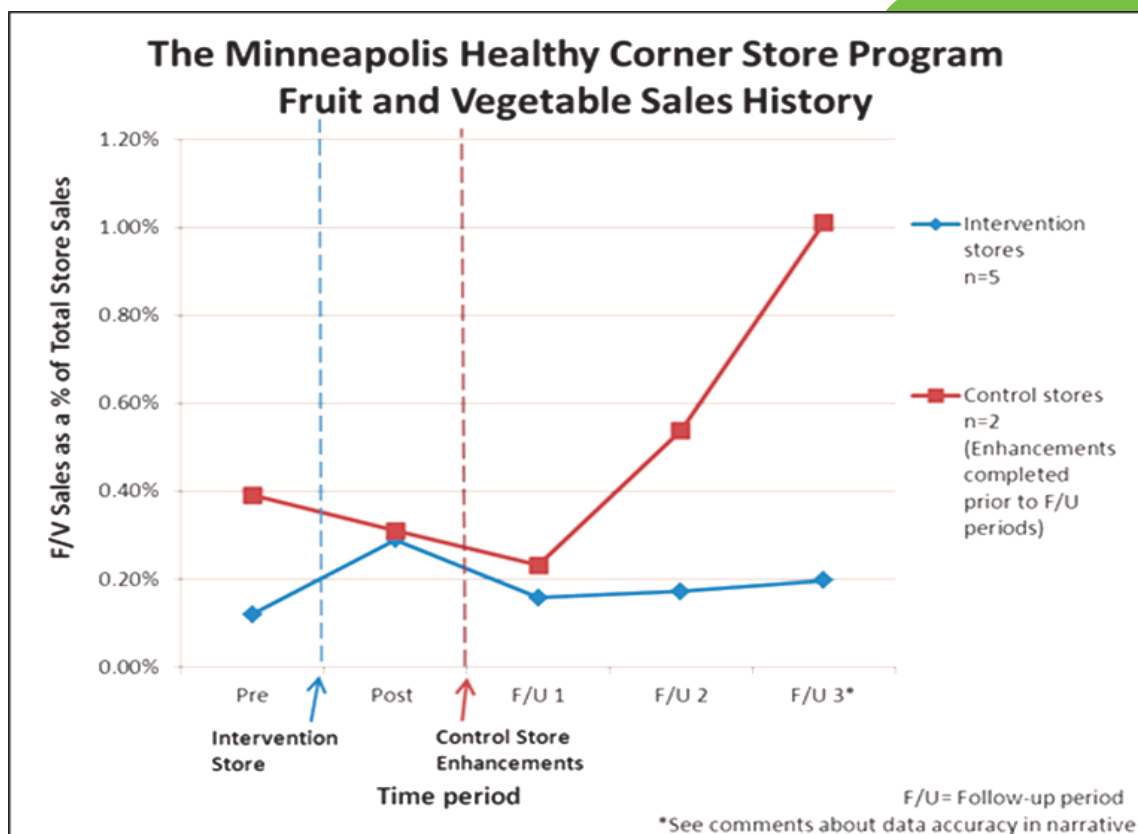


Figure 3



Follow-up evaluation in January, March, and May 2013 revealed many of the stores maintained their sales of fresh produce in the months following the intervention, yet several struggled. By the end of the last follow-up period in May, intervention stores increased their sales of fresh produce by 171% and MHD found the increase to be statistically significant ( $p=0.01$ ). While this shows produce sales continue to grow post-intervention, produce remains, on average, less than 1% of total stores sales (See Figure 3).

### How does the Minneapolis Healthy Corner Store Program impact customer purchases and perceptions of healthy foods?

Results from the customer surveys (post-store enhancements) indicated that the majority of customers in the intervention stores reported purchasing produce at least several times a month, while the majority of customers in control stores reported purchasing produce never to once a month in the surveyed corner store. Customers at the five intervention stores purchased produce significantly more frequently ( $p<0.01$ ) and reported a significantly more favorable perception of fruit and vegetable availability in their neighborhood than customers at the two control corner stores ( $p<0.05$ ). Customers' perception

of fruit and vegetable quality, however, did not differ significantly between intervention and control corner stores ( $p>0.05$ ). MHD also found that many customers in both groups said they were “interested in purchasing produce at their corner store in the future”, indicating there is a demand for produce in corner stores.

## Discussion and Lessons Learned

### Participating stores increased sales of fresh fruits and vegetables

The results of this evaluation provide evidence of increased produce sales and transactions over the course of stores’ participation in the Healthy Corner Store Program. It is important to note that the actual dollar sales of fruit and vegetables remained a marginal part of the gross daily revenue for each store. This is also true for produce transaction count, which accounted for a small fraction of the total daily transaction count. Intervention stores sold a weekly average of \$6.98 in fruits and vegetables post-enhancements—approximately double the amount sold before the enhancement. In the follow-up period, sales of produce continued to increase and averaged \$8.03 weekly. It is unclear if those amounts are an accurate reflection of sales because the data captured electronically in a POS system is only as accurate as the person or persons using the POS to track sales. Over the course of the intervention, MHD noticed some store owners became accustomed to using the “produce key” on their POS system correctly, while some struggled with consistency and accuracy. For this reason, it is highly likely reported sales are lower than actual sales and the increase in sales may be due to learning by the store owners to correctly operate their POS system.



Enhancements entailed grouping similar products in black produce baskets in coolers and hanging large “Fresh Produce” banners in highly visible locations near produce.



POS systems can provide an objective and potentially more accurate measure than receipt methods. In the receipt collection method, reporting may be less accurate because this involved an extra step for cashiers that became challenging when the store was busy or during shift changes. While both are feasible, POS collection provided a more robust measure less prone to user-error. Both methods, however, rely on the accuracy of the cashier. MHD found it was critical to allot ample time prior to baseline collection for a trial collection period that gave store owners time to adjust to using their POS systems and receipt systems in a new way, thus minimizing fluctuations in data reflective of learning, rather than sales. Overall, it is not feasible to constantly monitor POS use during the entire intervention, therefore it is difficult to know if all owners consistently operated their systems to track produce sales.

### Building relationships is essential for program success

For success of the program, MHD learned it was critical to establish a high level of trust and build a relationship with the owners first, which made them feel comfortable providing potentially sensitive financial data. The recruitment process provided an important opportunity for relationship building between MHD staff, community organizations and store owners. During routine site visits, MHD listened to the needs of the store owners and provided them with an opportunity to voice their concerns and triumphs in selling fresh produce. The \$50 gift cards provided an additional incentive to participate and provide accurate data. Owner interviews and visual assessments afforded contact points that made store owners feel MHD was invested in their success. MHD staff delivered high quality technical assistance and support for owners, choosing to incentivize owners to participate, rather taking a punitive approach.



To draw attention to healthy produce choices in an easy-to-reach area, MHD placed baskets of fruit at the point-of-purchase by front registers.



As sales of fresh produce grow, owners are more likely to become invested in the program and continue to maintain their displays.

## The Minneapolis Healthy Corner Store Program had some impact on customer purchasing patterns and perceptions related to healthy foods in corner stores

On average, customers at the five intervention corner stores reported purchasing produce significantly more frequently than those at the two control corner stores. It is highly plausible that the significant difference in customers purchasing frequency is in part due to the enhancements conducted by the Healthy Corner Store Program. By making the produce more visible and attractive, and increasing the variety available, customers may have been more inclined to notice the displays and make more frequent purchases.

## It is feasible, but challenging, to collect sales data in corner stores

Through this evaluation, MHD developed and tested a novel model for capturing indicators of produce sales by systematically collecting point of sales data (actual dollars sold and transactions) to measure change and tested the feasibility of conducting this type of evaluation on a larger scale.

Tracking sales during interventions can provide a quantitative measure of program impact over time and can serve as both an incentive for owners to participate and a proxy for the amount of fruit and vegetables being consumed by customers. MHD demonstrated POS systems and paper systems can function as evaluation measures; however, the experience also demonstrated that to be accurate, one must overcome challenges related to data collection. Many store owners lack knowledge or motivation to consistently and accurately record sales in their POS system. While POS systems can be a powerful business tool to manage inventory and track sales, many owners do not have properly programmed or maintained systems. With the technical assistance MHD and the consultant provided, five of the seven store owners successfully operated their POS systems and maintained tracking of produce. MHD found it was important to invest approximately 2 to 4 hours in each store to program systems and train owners prior to the start of data collection with the consultant and store owners. The consultant then accompanied MHD staff during all baseline data collections to supply additional support and technical assistance.



The POS consultant accompanied MHD staff during baseline data collection to assist with retrieving sales information and to provide additional support for owners.

## Data collection periods provided only a small snap shot of sales

The 14 weeks of data collected by MHD provided a small snap shot of sales and transactions as they occurred pre- and post- enhancements. Those interested in conducting a similar evaluation of their own corner store initiative may want to consider a longer period for data collection such as 6 months to one year for a more accurate reflection of the long-term impact on sales. Additionally, it may be beneficial to collect sales data on a monthly basis, rather than weekly, to reduce the burden on staff and resources. Overall, the evaluation required a significant amount of time and resources to implement, yet provided an objective measure of sales. POS systems, however, have proven to be a useful measure of impact if funding and staff can support such an evaluation.



MHD staff taught store owners how to organize, price and label produce and about the importance of taking daily care of perishable goods to maintain freshness.

## Appendix A: Weekly POS Data Collection form

### Minneapolis Healthy Corner Store Program: POS Data Collection Record

Store name: \_\_\_\_\_

Date of data pick up: \_\_\_\_/\_\_\_\_/\_\_\_\_

Data collector initials: \_\_\_\_\_

Gift Card #: \_\_\_\_\_

	Date of Sales	Fruits and/or vegetables			Store		
		Units Sold	Price per unit	Total F/V Sales	Total # of transactions	Total Store Sales	Total # of store transactions
1.	____/____/____		\$	\$		\$	
2.	____/____/____		\$	\$		\$	
3.	____/____/____		\$	\$		\$	
4.	____/____/____		\$	\$		\$	
5.	____/____/____		\$	\$		\$	
6.	____/____/____		\$	\$		\$	
7.	____/____/____		\$	\$		\$	

For data collector only:

How confident are you that the sales data for this week are complete and accurate?

- ☐ Extremely confident  
☐ Somewhat confident  
☐ Not very confident

Why or why not?

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Other notes from data collection and/or conversations with store owner:

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## Appendix B: Post-Enhancement Customer Survey



### Minneapolis Healthy Corner Store Program Customer Post-Survey

Store Name: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

#### Screening Questions:

- Are you 18 years of age? ..... ☐ Yes ☐ No  
In the past 3 months, have you shopped at this store at least once per week? ☐ Yes ☐ No

*Note to surveyor: If customer answers "Yes" to the Screening Questions, they are eligible to take the survey and receive a \$10 gift card. Please read the following statement to all eligible customers, then read each question and mark the appropriate response.*

Hello, the City of Minneapolis Department of Health and Family Support is working with (store name) to increase the availability of fresh fruits and vegetables. The University of Minnesota is assisting the City in gathering information about how the program is working. As a customer, we are interested in learning about your shopping habits. Would you like to participate in a brief survey? If you choose to answer the following questions, you will receive a \$10 Target gift card. Your answers will be totally confidential and you don't have to participate if you don't want to. Do you have any questions?

1. Do you shop at any other convenience stores at least once a week? If so, which ones?  
\_\_\_\_\_

2. Did you notice fresh produce for sale today in this store? ☐ Yes ☐ No  
a. If NO: Have you ever seen fresh produce for sale in this store? ☐ Yes ☐ No

3. Did you buy any fresh produce today at this store? ☐ Yes ☐ No

4. How frequently do you buy fresh produce at this store?  
☐ Several times a week ☐ About once a month  
☐ About once a week ☐ Never  
☐ Several times a month

5. In the past month, what types of fresh produce have you purchased at this store? Check all that apply:

- ☐ Potatoes
- ☐ Onions
- ☐ Lettuce
- ☐ Cucumbers
- ☐ Tomatoes
- ☐ Carrots
- ☐ Green Peppers

- ☐ Hot Peppers
- ☐ Bananas
- ☐ Apples
- ☐ Oranges
- ☐ Grapes
- ☐ Other): \_\_\_\_\_
- ☐ None

## Appendix B: Post-Enhancement Customer Survey

6. Since September, would you say that you have purchased "more", "less", or "about the same" amount of produce at this store?

☐ More

☐ Less

☐ About the same

☐ I don't purchase produce from this store

7. Would you consider buying fresh produce at this store in the future? ☐ Yes ☐ No

If NO: Why not? Check all that apply.

☐ Too expensive

☐ Poor quality

☐ Didn't have the types of produce I wanted

☐ I purchase my fresh produce somewhere else

☐ I don't buy fresh produce

☐ Other (please specify)

8. How much do you agree with the following statements:

- The fresh fruits and/or vegetables in my neighborhood are of high quality

☐ Strongly Agree

☐ Agree

☐ Neither agree nor disagree

☐ Disagree

☐ Strongly Disagree

- A large selection of fresh fruit and/or vegetables is available in my neighborhood

☐ Strongly Agree

☐ Agree

☐ Neither agree nor disagree

☐ Disagree

☐ Strongly Disagree

9. Do you think of yourself as:

☐ White

☐ Black or African American

☐ Hispanic or Latino

☐ Asian American

☐ American Indian/Native Alaskan

☐ Other (please specify): \_\_\_\_\_

10. Is your background one of the following?

☐ Cambodian

☐ Egyptian

☐ Ethiopian

☐ Hmong

☐ Iranian

☐ Laotian

☐ Liberian

☐ Somali

☐ Vietnamese

☐ Other (please specify): \_\_\_\_\_

☐ None of the above

